

Contribution to the knowledge of the Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) of Mindanao, Philippines

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Abstract: An account of Scaphisomatini Casey, 1893 species found in two sites of Mindanao (the Philippines) is given. *Baeocera candalagensis* sp. nov., *B. glabra* sp. nov., *B. onerosa* sp. nov., *Scaphobaeocera lata* sp. nov. and *Scaphoxium shavrini* sp. nov. are described, and *Baeocera wolfgangi* Löbl is reported for the first time from Mindanao. A key to the Philippine species of *Scaphoxium* Löbl is given.

Key words: Scaphisomatini, Philippines, taxonomy, new species, key.

Introduction

Recently, the Philippine Scaphisomatini Casey, 1893 have been dealt with in a few papers (Löbl 2011a & b; Löbl & Ogawa 2016; Löbl 2018) that point to unexpected richness of the group on the archipelago biotas. Nevertheless, the knowledge of these mycophagous and myxomycetophagous rove beetles remains still quite inadequate, at least as far as the fauna of most Philippine Islands concerned. This is also highlighted by a new collection of Mindanao Scaphisomatini received from Alexey V. Shavrin. The material comprises eleven species sampled in two sites, with five of the species being new to science and described below.

Material and methods

The material studied is deposited in the following collections:

MHNG – Muséum d'histoire naturelle, Genève, Switzerland;
PCAS – Collection Alexey Shavrin, Daugavpils, Latvia.

The locality data of the type specimens are reproduced verbatim. Data from different labels are separated by a slash. The body-length is measured from the anterior pronotal margin to the posterior of inner angles of elytra. As interocular width is given the shortest interval between the

eyes, seen in dorsal view. The length / width ratios of the antennomeres are measured on slide-mounted antennae. The abdominal microsculpture refers to the exposed segments, and not to the intersegmental membranes. The sides of the aedeagi refer to their morphological side with the ostium situated dorsally, while it is in resting position rotated 90°. The dissected body-parts are embedded in Euparal and fixed on a separate card on the same pin as the respective specimen.

Results

Baeocera Erichson, 1845

Currently, 20 species of *Baeocera* are known to occur in the Philippines, only four of them have been described or reported from Mindanao. Three of them are in the new collections, together with additional three new species.

Baeocera brunnea (Löbl, 1972)

Material examined. 2♂ & 4♀ PCAS & MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A. V. leg.

Distribution: This species has yet been reported from the Philippine islands Leyte, Luzon, Mindanao and Siargao.



***Baeocera candalagensis* sp. nov.** (Figs 1–4)

Holotype ♂ MHNG: Philippines Mindanao. Araibo. Pantukan. Compostela Valley. 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A. V.

Derivatio nominis: The species epithet is an adjective derived from the name of the mountains where it was found.

Description: Length 1.48 mm, width 1.10 mm. Frons and body very dark brown, almost blackish, apex of abdomen ochraceous, femora and tibiae reddish-brown, tarsi and antennomeres I to VI ochraceous, following antennomeres light brown. Body strongly convex dorsally. Eyes in dorsal view slightly larger than half of interval between them. Length/width ratios of antennomeres as: III 25/8: IV 25/8: V 30/8: VI 26/8: VII 45/11: VIII 44/11: IX 45/14: X 44/14: XI 51/14. Pronotum and elytra not microsculptured, with lateral contours separately arcuate. Pronotum very finely punctate, with lateral margins rounded, lateral margin carinae concealed in dorsal view. Apex of scutellum exposed. Elytra not overlapping abdominal apex, moderately narrowed apically, lateral margin carinae not visible in dorsal view, sutural striae entire, parallel in basal third of sutural length, converging posteriad, bent along pronotal lobe and extended along bases to form complete basal striae joined with lateral striae. Sutural striae distinctly punctate, except along apical third, punctures along lateral striae almost indistinct. Basal striae deep and well visible near lateral margins. Punctuation on basal 0.15 to 0.20 mm, on 0.15 mm broad stripe along sutural striae, on narrow stripe along lateral margins and on apical halves of elytra fine, very shallow and not well delimited, with punctures distinctly larger than pronotal punctures. Conspicuous patch of coarse and sharply delimited punctures situated in anterior half of each elytron; intervals between coarse punctures about 1.5 to two times puncture diameters. Hind wings not reduced. Hypomera extremely finely punctate. Mesepimera about four times as long as wide and four times as long as intervals to mesocoxae. Metaventricle convex and impunctate in middle, with several coarse punctures delimiting smooth centre; lateral parts of metaventricle extremely finely punctate. Mesocoxal lines parallel, with coarse puncture row extended laterally almost to mid-length of mesepimera; mesocoxal areas about 0.03 mm, as fifth of shortest intervals to metacoxae. Exposed part of metanepisterna large, near anterior angles about 0.10 mm wide, narrowed posteriad, with distinct, impunctate suture. Metepimera each with

longitudinal stria. Protibiae straight, mesotibiae and metatibiae slightly bent. Propygidium and ventrite I not microsculptured, pygidium and ventrites II to VI with hardly visible punctulate microsculpture. Basal half of propygidium densely and rather coarsely punctate, with punctures well delimited, smaller than coarse elytral punctures, to part about as large as puncture intervals. Apical part of propygidium and pygidium very finely and sparsely punctate. Ventrite I without wrinkles, with basal row of coarse elongate punctures not interrupted in middle; punctuation extremely fine posterior of basal row, as on following ventrites. Male protarsomere I strongly widened, somewhat narrower than apices of protibiae, Protarsomere II and III slightly widened. Mesotarsomeres I slightly widened. Ventrite VI shallowly emarginate at each side of triangular, about 0.10 mm long and acute median process. Aedeagus (Figs 1–4) 0.87 mm long.

Differential diagnosis: This new species falls in the key to Philippine species (Löbl, 2012) under the couplet 5, to *B. alticola* Löbl, 2012 and *B. fortis* Löbl, 2012, its aedeagal characters suggest relationships with *B. fortis*. The new species is readily distinguishable from *B. fortis* by its smaller size, the darker body colour, the antennomeres III as long as the antennomeres IV and the antennomeres V clearly longer than antennomeres IV or VI, the shape of the apical margin of the male ventrite VI, the parameres widened apically and lacking lobes or processes, the blunt and in dorsal view not incurved tip of the median lobe, and the shape of the sclerotized pieces of the internal sac. Diagnostic for the new species are also tufts of elongate spine-like and lamellar structures within the internal sac.

***Baeocera glabra* sp. nov.** (Figs 5–7)

Holotype ♂ MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A. Paratypes 3♂ PCAS & MHNG: data as the holotype.

Derivatio nominis: The species epithet is a Latin adjective meaning glabrous.

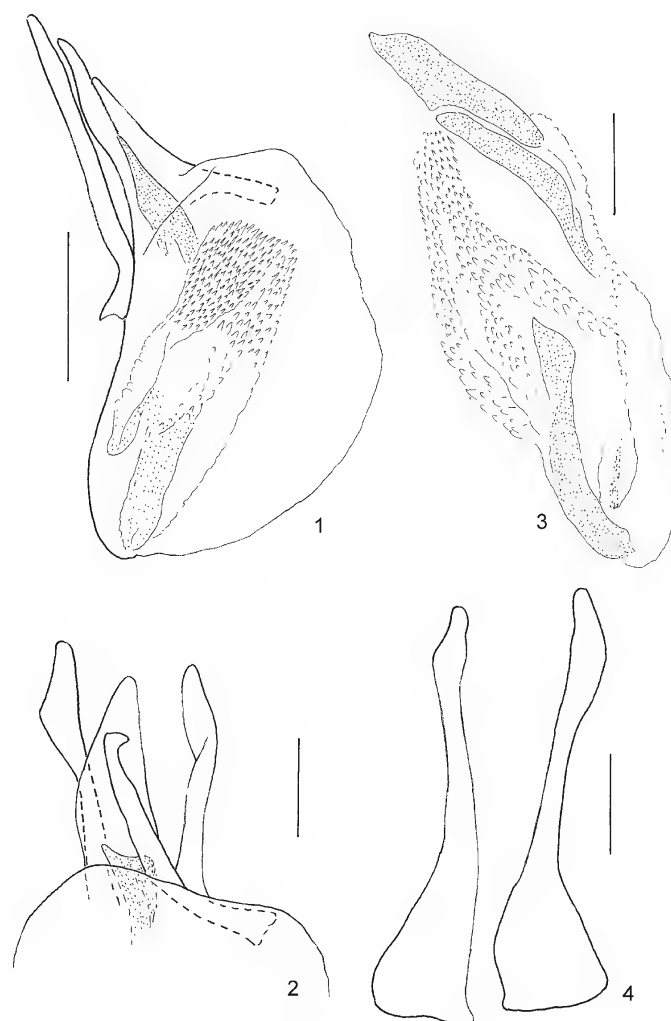
Description: Length 0.88–0.91 mm, width 0.63–0.65 mm. Frons and most of body blackish, apex of abdomen, femora and tibiae reddish-brown, tarsi and antennae ochraceous to yellowish. Body strongly convex dorsally. Body strongly convex dorsally. Eyes in dorsal view slightly smaller than half of interval between them. Length/width ratios of antennomeres as: III 16/5: IV 17/5:



V 18/6: VI 17/5: VII 24/8: VIII 18/5: IX 25/10: X 25/10: XI 34/10. Pronotum and elytra not microsculptured, with lateral contours continuously arcuate. Pronotum very finely punctate, with lateral margins rounded, lateral margin carinae concealed in dorsal view. Scutellum concealed. Elytra not overlapping abdominal apex, moderately narrowed apically, lateral margin carinae not visible in dorsal view, sutural striae entire, parallel, bent along pronotal lobe and extended along bases to form complete basal striae joined to lateral striae. Adsutural areas and sutural striae with few rather distinct fine puncture, discal punctation very fine, as that on pronotum, hardly visible at 100 times magnification. Hind wings fully developed. Hypomera appearing impunctate. Mesepimera about three times as long as wide and somewhat more than two times as long as intervals to mesocoxae. Metaventrite convex and impunctate in middle, with coarse punctures delimiting smooth centre; lateral parts of metaventrite smooth near metacoxae, coarsely and irregularly punctate on

remaining surface. Mesocoxal lines slightly convex, with coarse puncture row extended laterally almost to mesepimera; mesocoxal areas about 0.02 mm, as third of shortest intervals to metacoxae. Exposed part of metanepisterna narrow, parallel, about 0.04 mm wide, with distinct, punctate suture. Metepimera each with longitudinal stria. Tibiae straight. Ventrite I without wrinkles, with basal row of coarse, to part slightly elongate punctures not interrupted in middle, punctation posterior of basal row extremely fine, hardly visible at 100 times magnification, as that on following ventrites. Male protarsomere I to III slightly widened. Aedeagus (Figs 5–7) 0.21–0.24 mm long.

Differential diagnosis: This new species is a member of the *B. lenta* species-group and is similar to *B. danielae* Löbl, 2012. It may be distinguished by the elytra entirely very finely punctate, in combination with the minute body-size and the internal sac lacking membranous denticles and bearing a proximally widened sclerite (seen in lateral view).



Figures 1–4. *Baeocera candalagensis* sp. nov. 1 – Aedeagus in lateral view [scale bar 0.2 mm]; 2 – Apical part of aedeagus [scale bar 0.1 mm]; 3 – Internal sac in dorsal view [scale bar 0.1 mm]; 4 – Parameres in ventral view, [scale bar 0.1 mm].



***Baeocera hypomeralis* Löbl, 2012**

Material examined. 3 ♂ & 3 ♀ PCAS & MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A. V. leg.

Comments. This species is known only from Luzon and Mindanao.

***Baeocera onerosa* sp. nov.** (Figs 8–10)

Holotype ♂ MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A. V. leg.

Paratypes 8♂ & 6♀ PCAS & MHNG: same data as in holotype.

Derivatio nominis: The species epithet is a Latin adjective meaning difficult.

Description: Length 1.08–1.18 mm, width 0.71–0.81 mm. Frons and body blackish, with apical abdominal segments light, ochraceous to yellowish. Femora and tibiae dark reddish-brown, tarsi and antennae light, nearly yellowish. Body strongly convex dorsally. Eyes in dorsal view as large as half of interval between them. Length/width ratios of antennomeres as: III 28/6: IV 21/6: V 30/6: VI 28/6: VII 34/8: VIII 33/7: IX 35/10: X 35/13: XI 40/13. Pronotum and elytra not microsculptured, with lateral contours nearly continuously arcuate. Pronotum very finely punctate, with lateral margins rounded, lateral margin carinae concealed or hardly visible in dorsal view. Scutellum concealed. Elytra not overlapping abdominal apex, strongly narrowed apically, lateral margin carinae visible only near bases in dorsal view, sutural striae entire, parallel in basal half of sutural length, converging posteriad mid-length, bent along pronotal lobe and extended along bases to form complete basal striae joined with lateral striae. Anterior third of sutural and lateral striae distinctly punctate. Basal striae very shallow and hardly visible near lateral margins. Punctuation coarse and sparse on basal third of elytral disc, except on narrow band along base and near sutural striae, intervals between coarse punctures mostly about 1.5 to 2 times as large as puncture diameters. Punctuation on remaining surface of elytra very fine and sparse. Hind wings not reduced. Hypomera appearing impunctate. Mesepimera about four times as long as wide and three times as long as intervals to mesocoxae. Metaventrite flattened in middle, with impunctate mesal stripe, remaining mesal and entire lateral surfaces coarsely and very densely punctate, punctures mostly larger than puncture intervals. Mesocoxal lines parallel, mesocoxal areas about 0.02 mm, as

fourth of shortest intervals to metacoxae. Exposed part of metanepisterna very narrow, with suture indicated by outer coarse punctures. Metepimera without longitudinal striae. Tibiae straight. Ventrite I without wrinkles, with coarse row of basal punctures narrowly interrupted in middle and several scattered rather large punctures on sides; remaining abdominal punctuation very fine. Male protarsomere I to III slightly widened. Aedeagus (Figs 8–10) 0.33–0.35 mm long.

Differential diagnosis: This new species is also a member of the *B. lenta* species-group and falls under the couplet 13 in the key to Philippine *Baeocera* (Löbl 2012). Its aedeagal characters, especially the complex sclerotized parts of the internal sac, differ drastically from both species under this couplet, *B. louisi* Löbl, 2012 and *B. danielae* Löbl, 2012. *Baeocera onerosa* sp. nov. may be readily distinguished from these two species by the much dense punctuation on lateral parts of the metaventrite and by several rather large punctures on lateral parts of the abdominal ventrite I, situated posterior of basal puncture row. The internal sac of *B. onerosa* sp. nov. is similar to that of *B. boettcheri* (Löbl, 1972) while the shape of the parameres and the elytral punctuation differ drastically.

***Baeocera wolfgangi* Löbl, 2012**

Material examined. 2♂ PCAS & MHNG: Mindanao, Davao Prov., Mt. Talomo (Mt. Apo) Catigan, / 800–1000 m, 7°01'21.0"N, 125°22'30.5"E, 29.4.–1.5. 2019, A.V. Shavrin leg.; 6♂ & 4♀ PCAS, MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019, Shavrin A. V. leg.

Distribution: The species was known only from the island Leyte.

***Birocera* Löbl, 1970**

This genus comprises three species, with *B. derougemonti* Löbl, 1983 appearing restricted to Sulawesi (Greater Sunda Islands, Indonesia), *B. punctatissima* (Reitter, 1880) known both from the Philippines and Sulawesi, and *B. basicollis* Löbl, 2011 described from the Philippine specimens.

***Birocera basicollis* Löbl, 2011**

Material examined. 1♀ PCAS: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A. V. leg.



Distribution: This species is currently known from Luzon and Mindanao, the Philippines.

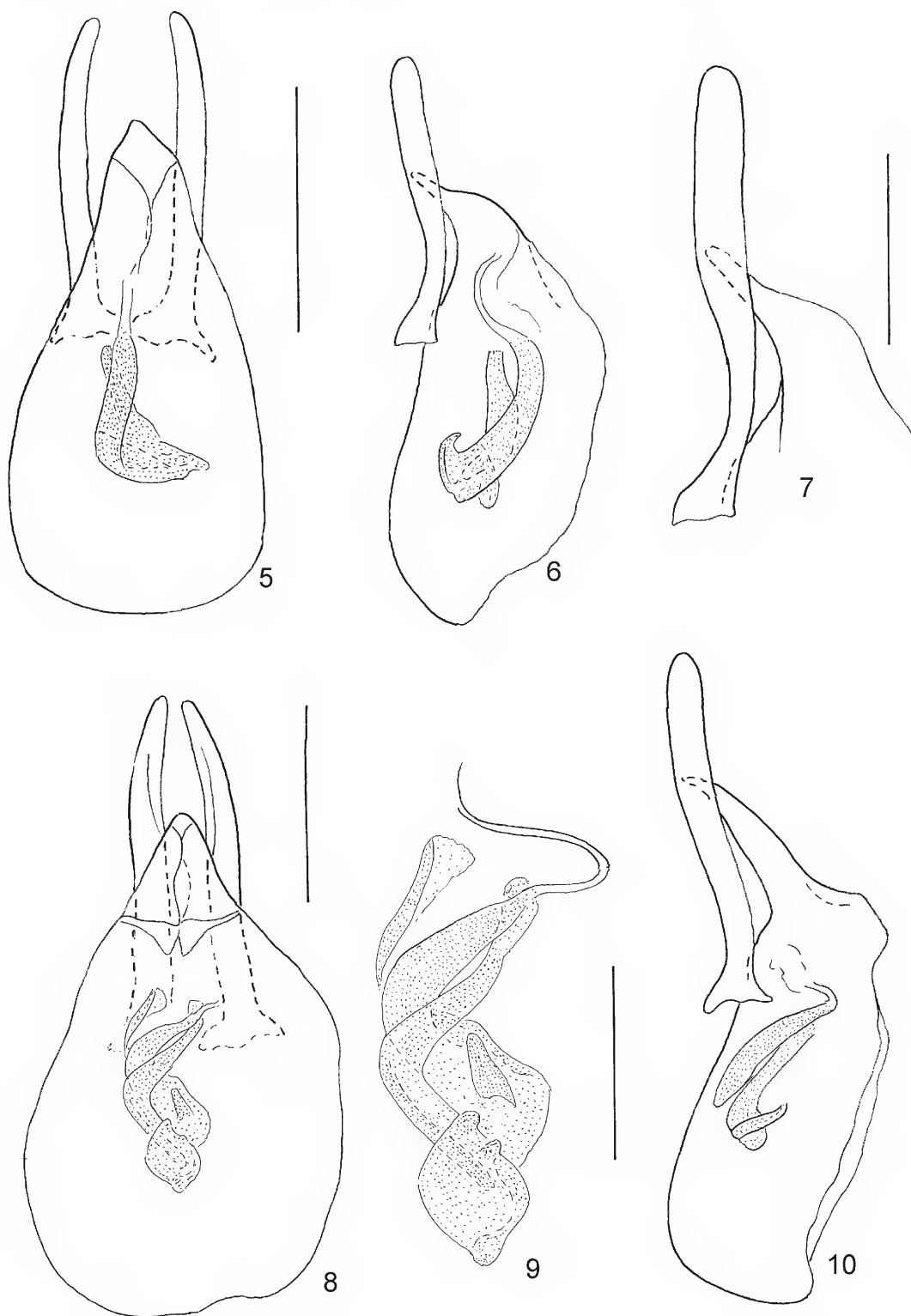
(2011a). Only one of them, *B. rufescens* Löbl, 1972, is known to occur in Mindanao, the Philippines.

***Bironium* Csiki, 1909**

This genus is with 31 species widely distributed in the Oriental region and in Melanesia. The four Philippine species of *Bironium* were keyed in Löbl

***Bironium rufescens* Löbl, 1972**

Material examined. 1♂ & 1♀ PCAS & MHNG: Mindanao, Davao Prov., Mt. Talomo (Mt. Apo) Catigan, 800-1000 m, 7°01'21.0"N, 125°22'30.5"E, 29.4.-1.5. 2019, A.V. Shavrin leg.



Figures 5–10. Aedeagi in *Baeocera*. 5–6 – *B. glabra* sp. nov., dorsal (5) and lateral (6) view [scale bar 0.1 mm]; 7 – ditto, apical part of aedeagus [scale bar 0.05 mm]; 8–10 – *B. onerosa* sp. nov.; 8 & 10 – Aedeagus, dorsal (8) and lateral (10) view [scale bar 0.1 mm]; 9 – Internal sac [scale bar 0.05 mm].



Distribution: This species is reported from Leyte and Mindanao in Löbl et al. (2020). Unlike other examined specimens of *B. rufescens*, both are black.

***Scaphisoma* Leach, 1815**

Scaphisoma comprises 112 species reported from the Philippines (Löbl & Ogawa 2016) and is the far most species-rich genus of the scaphidiines. A single species is present in the recent material.

***Scaphisoma laminatum* Löbl, 1972**

Material examined. 1♂ & 2♀ PCAS & MHNG: Mindanao, Davao Prov., Mt. Talomo (Mt. Apo) Catigan, / 800-1000 m, 7°01'21.0"N, 125°22'30.5"E, 29.4.-1.5. 2019, A.V. Shavrin leg.; 3♂ PCAS & MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A.V. leg.

Distribution: The species has been reported from Leyte, Luzon, Mindanao and Panay.

***Scaphobaeocera* Csiki, 1909**

The Philippine species were dealt with and keyed in Löbl (2011b). From the 18 currently recognized Philippine species, only four are known to occur on Mindanao. An additional, new species is present in the examined collections.

***Scaphobaeocera lata* sp. nov. (Figs 11–12)**

Holotype ♂ MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A.V. leg.

Paratype ♂ PCAS: Mindanao, Davao Prov., Mt. Talomo (Mt. Apo) Catigan, / 800-1000 m, 7°01'21.0"N, 125°22'30.5"E, 29.4.-1.5. 2019, A.V. Shavrin leg.

Derivatio nominis. The species epithet is a Latin adjective meaning wide, referring to the wide parameres.

Description: Length 1.35 mm, width 0.69 mm, dorsoventral diameter 0.71 mm. Head and body dark brown with somewhat reddish shine, apical abdominal segments and appendages lighter, reddish-brown. Length/width ratios of antennomeres as: III 17/7: IV 22/5: V 27/5: VI 22/7: VII 33/9: VIII 18/8: IX 30/19: X 33/14: XI 40/14. Thorax not microsculptured, pronotum very finely punctate. Tip of scutellum exposed. Elytra with strigulate microsculpture hardly visible at 100 times magnification, not iridescent, with punctation

similar with that of pronotum; sutural striae starting near pronotal lobe, parasutural striae hardly visible. Hypomeron without longitudinal stria. Middle part of metaventricle impressed, lacking stria, densely and finely punctate and bearing short pubescence on posterior half, impunctate in middle of anterior half. Sides of metaventricle sparsely, extremely fine punctate, with fairly long pubescence. Mesocoxal lines with row of fine punctures not exceeded laterally along mesepimera; mesocoxal areas about 0.04 mm long, almost as fourth of shortest intervals to metacoxae. Metanepisterna flat, 0.06 mm wide, narrowed apically, with curved suture. Tibiae straight. Abdomen with strigulate microsculpture and very finely punctate. Basal punctures of ventrite I rather coarse. Male segments I to III of protarsi distinctly widened, segment I narrower than apex of protibia. Aedeagus (Figs 11–12) 0.42 mm long. **Differential diagnosis:** The aedeagal characters suggest relationships of this new species with the Philippine *S. episternalis* Löbl, 2011, though it would fall under the couplet 18 in the key to the Philippine species (Löbl, 2011b). It differs drastically from *S. episternalis* by the much narrower metanepisterna, darker body, not iridescent elytra, and much wider parameres. The two species given under the couplet 18, *S. pseudotenella* Löbl, 2011 and *S. data* Löbl, 2011, may be easily distinguished by the shape of the internal sac. Prominent articular processes are present in several congeners, such as *S. cognata* Löbl, 1984, *S. difficilis* Löbl, 1979, *S. jirkai* Löbl, 2018, *S. ornata* (Pic), *S. papuana* Csiki, 1909, *S. stipes* Löbl, 1971, *S. tenella* Löbl, 1990 and *S. uncata* Löbl, 1990. These species differ conspicuously from *S. lata* sp. nov. either by the shape of the apical process of the median lobe or by the narrow basal section of the parameres (seen in lateral view).

***Scaphoxium* Löbl, 1979**

Currently, two species of *Scaphoxium* are known from the Philippines, *S. alesi* Löbl, 2011 from Luzon and *S. taylori* Löbl, 1981 described from Sarawak and subsequently reported from the Philippine islands Luzon, Mindanao and Palawan. The new collections yielded an additional species.

Key to the Philippine species of *Scaphoxium*

- 1 Antennomeres XI about 1.5 times as long as antennomeres X. Sides of metaventricle with coarse punctures 2

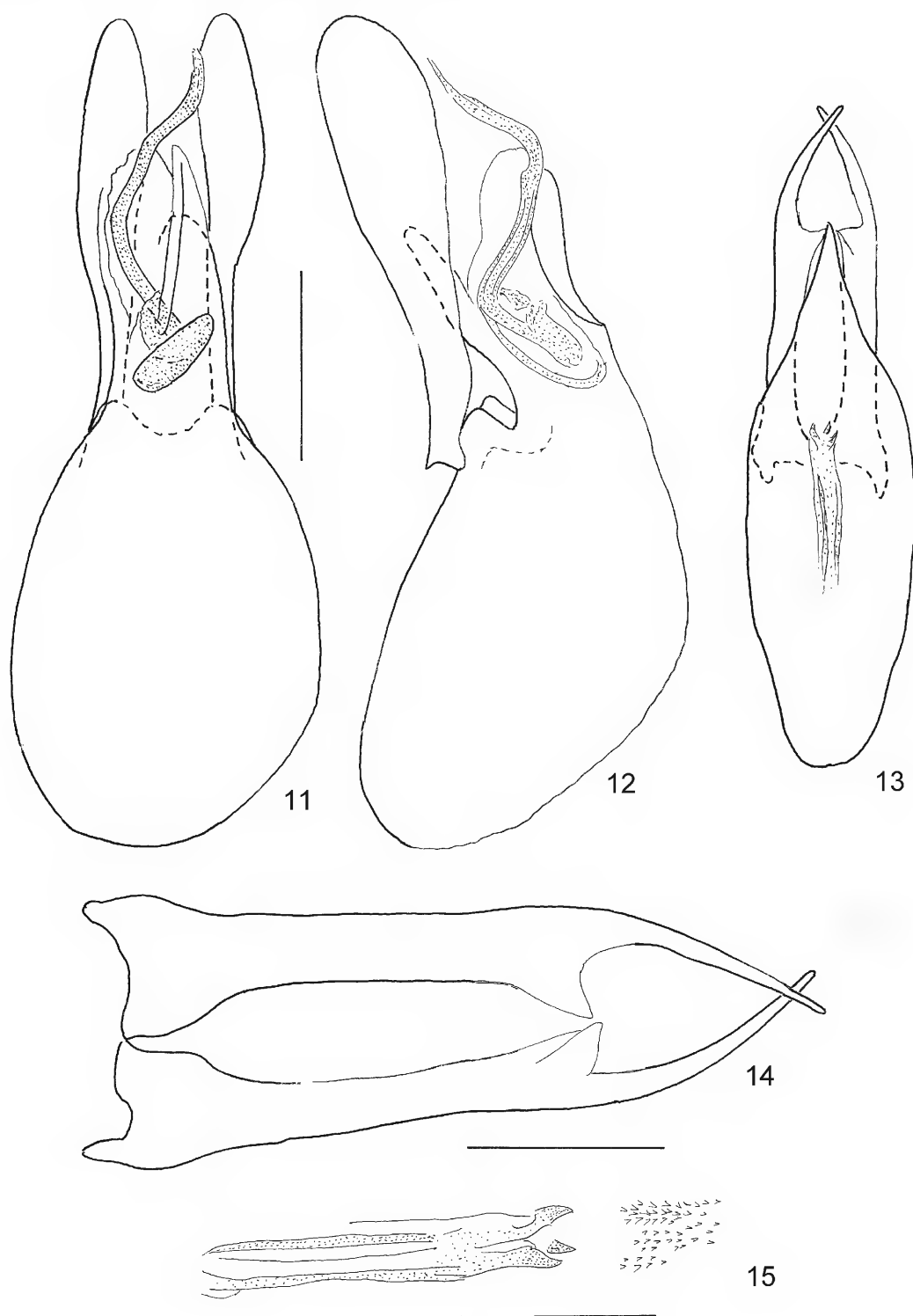


- Antennomeres XI about as long or slightly longer than antennomeres X. Sides of metaventrite very finely punctate *S. taylori* Löbl
- 2 Sides of metaventrite with few coarse punctures. Antennomeres VIII about 4 times as long as wide. Internal sac of aedeagus lacking sclerotized denticles ..
..... *S. alesi* Löbl
- Sides of metaventrite with dense patch of coarse punctures. Antennomeres VIII about 2.5 times as long as

wide. Internal sac of aedeagus with strongly sclerotized denticles *S. shavrini* sp. nov.

***Scaphoxium shavrini* sp. nov.** (Figs 13–15)

Holotype ♂ MHNG: Mindanao, Araibo, Pantukan, Compostela Valley, 900 m, Candalaga / Mts., 7°16'35.3"N, 126°10'12.8"E, 4.5.2019 Shavrin A.V. leg.



Figures 11–15. Scaphidiid aedeagi. 11–12 – *Scaphobaeocera lata* sp. nov., dorsal (11) and lateral (12) view [scale bar 0.1 mm]; 13–15 – *Scaphoxium shavrini* sp. nov. 13 – Aedeagus, dorsal view [scale bar 0.1 mm]; 14 – Parameres, ventral view [scale bar 0.1 mm]; 15 – Internal sac [scale bar 0.1 mm].



Derivatio nominis: Patronymic. The species is dedicated to its collector Alexei V. Shavrin (Daugavpils, Latvia), a well-known expert of rove beetles.

Description: Length 1.54 mm, width 0.77 mm, dorsoventral diameter 0.86 mm. Head and most of body evenly very dark reddish-brown, apical abdominal segments, femora and tibiae lighter, tarsi lighter than tibiae, antennae brown. Length/width ratios of antennomeres as: III 20/6: IV 19/6: V 26/6: VI 22/7: VII 39/11: VIII 25/11: IX 38/13: X 33/13: XI 48/15. Pronotal punctation very fine, hardly visible at 50 times magnification. Scutellum concealed. Elytral punctation distinct, fine and dense, sutural striae starting about 0.20 mm posterior of level of pronotal lobe. Mesoventrite not striate, impressed and with low mesal ridge narrowed apically. Median part of metaventrite slightly convex, with irregular transverse row of extremely fine punctures. Lateral parts of metaventrite appearing impunctate near metacoxae, each with dense patch of conspicuously coarse punctures and oblique ridge. Mesocoxal areas about 0.05 mm, almost as halves of shortest intervals to metacoxae. Metanepisterna slightly convex, about 0.06 mm wide, with curved, deep, apically shortened sutures. Ventricle I with few distinct basal punctures, not microsculptured. Following ventrites and exposed tergites with punctulate microsculpture and extremely fine punctation. Male segments I to III of protarsi slightly widened. Aedeagus (Figs 13–15) 0.68 mm long. **Differential diagnosis:** This new species is likely related with *S. alesi* Löbl, 2011. It may be distinguished by the dark body-colour, the shorter sutural striae of the elytra, the sides of the metaventrite bearing dense and coarse punctures, the shape of the angular subapical parameral lobes and the presence of strongly sclerotized denticles in the internal sac of the aedeagus.

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